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WATER SUPPLY OUTLOOK FOR COLORADO AND NEW MEXICO

and
FEDERAL-STATE-PRIVATE COOPERATIVE SNOW SURVEYS

AS OF
MARCH 1, 1979



U.S. DEPARTMENT of AGRICULTURE * SOIL CONSERVATION SERVICE

Collaborating with
COLORADO STATE UNIVERSITY EXPERIMENT STATION
STATE ENGINEER of COLORADO
and STATE ENGINEER of NEW MEXICO

Issued by
R.M. DAVIS
ADMINISTRATOR
SOIL CONSERVATION SERVICE
WASHINGTON, D.C.

Released by
ROBERT G. HALSTEAD
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
DENVER, COLORADO

A.W. HAMELSTROM
STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
ALBUQUERQUE, NEW MEXICO

Report prepared by
BERNARD A. SHAFER, Snow Survey Supervisor
JAMES K. MARRON, Assistant Snow Survey Supervisor
JUDY RAYE TEILBORG, Statistical Assistant

SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
P.O. BOX 17107
DENVER, COLORADO 80217

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WATER SUPPLY CONDITIONS as of MARCH 1, 1979

FORECASTS OF STREAMFLOW FOR THE SNOWMELT RUNOFF PERIOD RANGE FROM NEAR AVERAGE IN THE SOUTH PLATTE RIVER BASIN TO 200 PERCENT FOR MOST SECTIONS OF THE RIO GRANDE IN NEW MEXICO. SNOWPACK ON THE GROUND BY MARCH 1 NORMALLY REPRESENTS ABOUT 80 TO 90 PERCENT OF THE MAXIMUM SEASONAL ACCUMULATION. PRECIPITATION DURING MARCH WILL BE A SIGNIFICANT FACTOR IN FORECASTS MADE THE FIRST OF APRIL. SOME DRAINAGES LIKE THE SOUTH PLATTE STILL NEED ABOVE AVERAGE PRECIPITATION TO INSURE A PLENTIFUL WATER SUPPLY WHILE OTHERS IN NEW MEXICO AND SOUTHWEST COLORADO FACE THE POSSIBILITY OF LOCAL FLOODING.

 **COLORADO** -- PRECIPITATION DURING FEBRUARY WAS VARIABLE. SOUTHWESTERN COLORADO RECEIVED ABOVE AVERAGE PRECIPITATION; CENTRAL AND NORTHERN COLORADO RECEIVED NEAR NORMAL AMOUNTS; AND THE SOUTH PLATTE, ARKANSAS AND RIO GRANDE BASINS WERE BELOW NORMAL. STREAMS ARE EXPECTED TO FLOW 85 TO 90 PERCENT ABOVE NORMAL IN SOUTHWESTERN COLORADO. OTHER MAJOR BASINS SHOULD HAVE FLOWS 10 TO 40 PERCENT ABOVE NORMAL EXCEPT FOR THE SOUTH PLATTE WHICH IS FORECAST NEAR AVERAGE.

 **NEW MEXICO** -- ABOVE NORMAL PRECIPITATION IN FEBRUARY CONTINUED TO INCREASE THE MOUNTAIN SNOWPACK TO RECORD LEVELS. AS A RESULT ALL STREAMS IN THE RIO GRANDE ARE FORECAST TO PRODUCE RUNOFF TWICE THEIR NORMAL AMOUNTS. ABNORMALLY HEAVY SNOWPACKS EXISTING AT LOWER ELEVATIONS COUPLED WITH WET SOIL PROFILES RAISES THE POTENTIAL FOR LOCAL FLOODING IN LOW LYING AREAS IF THE RIGHT COMBINATIONS OF WEATHER CONDITIONS OCCUR. NATIONAL WEATHER SERVICE OFFICES CAN PROVIDE ADDITIONAL INFORMATION ON FLOOD POTENTIAL WHEN SNOWMELT GETS UNDERWAY.

THE PHOTOGRAPH ABOVE IS OF A TYPICAL REMOTE AUTOMATED HYDROMETEOROLOGICAL DATA COLLECTION SITE IN THE SOIL CONSERVATION SERVICE'S (SCS) SNOW TELEMETRY (SNOTEL) SYSTEM. SOME 48 SUCH SITES ARE SCHEDULED FOR INSTALLATION IN COLORADO AND ANOTHER 12 IN NEW MEXICO BY THE END OF 1980. THESE SITES TELEMETER TWICE DAILY READINGS ON SNOWPACK WATER EQUIVALENT, TOTAL PRECIPITATION AND AMBIENT AIR TEMPERATURE TO A CENTRAL COMPUTER FACILITY AT THE SCS TECHNICAL SERVICE CENTER IN PORTLAND, OREGON. FROM HERE THE INFORMATION IS MADE AVAILABLE IN A NEAR REAL TIME MODE TO STATE OFFICES OF THE SCS AND OTHER INTERESTED WATER MANAGEMENT AGENCIES THROUGH A DIAL-UP COMPUTER TERMINAL NETWORK.

THE SNOTEL SYSTEM IS UNIQUE IN THE REMOTE DATA ACQUISITION FIELD BECAUSE OF ITS RELIANCE ON A PHENOMENON CALLED METEOR BURST COMMUNICATIONS. INSTEAD OF USING CONVENTIONAL LINE-OF-SITE RADIO TELEMETRY PATHS OR SATELLITE LINKS, THE SNOTEL SYSTEM USES THE IONIZED TRAILS OF METEORITES WHICH ARE CONSTANTLY ENTERING THE EARTH'S ATMOSPHERE TO PROVIDE A REFLECTION MEDIUM FOR RADIO WAVES BETWEEN REMOTE STATIONS AND TWO MASTER STATIONS.

AT PRESENT 21 SITES IN COLORADO AND 5 SITES IN NEW MEXICO ARE ACTIVELY REPORTING ON A DAILY BASIS. THE REMAINDER OF THE PROPOSED COMPLIMENT WILL BE INSTALLED AND BROUGHT ON LINE WITHIN TWO YEARS.

FOR MORE INFORMATION ON THE SNOTEL SYSTEM CONTACT YOUR LOCAL SOIL CONSERVATION SERVICE OFFICE OR THE STATE CONSERVATIONISTS IN COLORADO AND NEW MEXICO.



The map on this page indicates the most probable water supply as of the date of this report. Estimates assume average conditions of snow fall, precipitation and other factors from this date to the end of the forecast period. As the season progresses accuracy of estimates improves. In addition to expected streamflow, reservoir storage, soil moisture in irrigated areas, and other factors are considered in estimating water supply. Estimates apply to irrigated areas along the main streams and may not indicate conditions on small tributaries.

"The Conservation of Water begins with the Snow Survey"



GUNNISON RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

SNOWPACK OVER THE GUNNISON BASIN DROPPED SLIGHTLY FROM 162 PERCENT OF AVERAGE LAST MONTH TO 150 PERCENT OF AVERAGE ON MARCH 1. PRECIPITATION OVER THE BASIN VARIED FROM WELL BELOW TO WELL ABOVE NORMAL IN FEBRUARY. HOWEVER, A BOUNTIFUL SPRING RUNOFF IS ANTICIPATED WITH STREAMFLOW FORECAST TO BE 30 TO 74 PERCENT ABOVE NORMAL. STORAGE IN TAYLOR RESERVOIR IS NEAR NORMAL AND BLUE MESA CONTAINS 124 PERCENT OF NORMAL FOR THIS TIME OF YEAR. SOIL MOISTURE IS RATED AS GOOD IN ALL AREAS.

STREAMFLOW FORECASTS (1000 AC. FT.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Gunnison River inflow to Blue Mesa Reservoir (1)	1120	149	754.0
Gunnison River near Grand Junction (2)	2000	174	1150.0
North Fork of Gunnison (3)	370	141	262.0
Surface Creek near Cedaredge	22	145	15.2
Uncompahgre River at Colona	170	132	129.0

(1) Observed flow plus change in storage in Taylor Reservoir. (2) Observed flow plus change in storage in Blue Mesa, Morrow Point and Taylor Reservoirs. (3) Observed flow plus change in storage in Poudre Reservoir.

WATER SUPPLY OUTLOOK

STREAM or AREA	Flow Period	
	Spring Season	Summer Season
Ohio Creek	Exc	Avg
Slate River	Exc	Avg
Taylor River	Exc	Avg
Tomichi Creek	Exc	Avg

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and Reservoir	Usable Capacity	Storage		
		1963-77	1963-77	1963-77
Blue Mesa	830	418	238	338
Morrow Point	121	115	114	102
Taylor	106	62	32	63

LIST OF COOPERATORS

The following organizations cooperate in snow surveys for the Colorado, Platte, Arkansas and Rio Grande watersheds. Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

STATE

Colorado State Engineer
Colorado State Soil Conservation Board
New Mexico State Engineer
Colorado State University Experiment Station
Rocky Mountain Forest and Range Experiment Station
New Mexico Dept. of Game and Fish

FEDERAL

Department of Agriculture
Forest Service
Soil Conservation Service
Department of Interior
Bureau of Reclamation
Geological Survey
National Park Service
Department of Commerce
NOAA, National Weather Service
Defense Department
Army Engineer Corps
National Aeronautics and Space Administration
Goddard Space Flight Center

INVESTOR OWNED UTILITIES

Colorado Public Service Company
Public Service Company of New Mexico

MUNICIPALITIES

City of Denver
City of Boulder
City of Greeley
City of Fort Collins

WATER USERS ORGANIZATIONS

Arkansas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Maria Reservoir Company
Castilla Land Company
Uncompahgre Valley Water Users' Association
Twin Lakes Reservoir and Canal Company
Trinchera Irrigation Co.

CORPORATIONS

Aspen Skiing Corp.
Colorado Fuel and Iron Corp.
Climax Molybdenum Corp.
Copper Mountain Ski Area
Lake Eldora Corp.
Vail Associates, Incorporated
Vermejo Park Corp. (NM)
Taylor Lumber and Land Company
Idarado Mining Corp.

PRIVATE CITIZENS

Otto Gaemmer, Colorado
Mareno Ranch, New Mexico

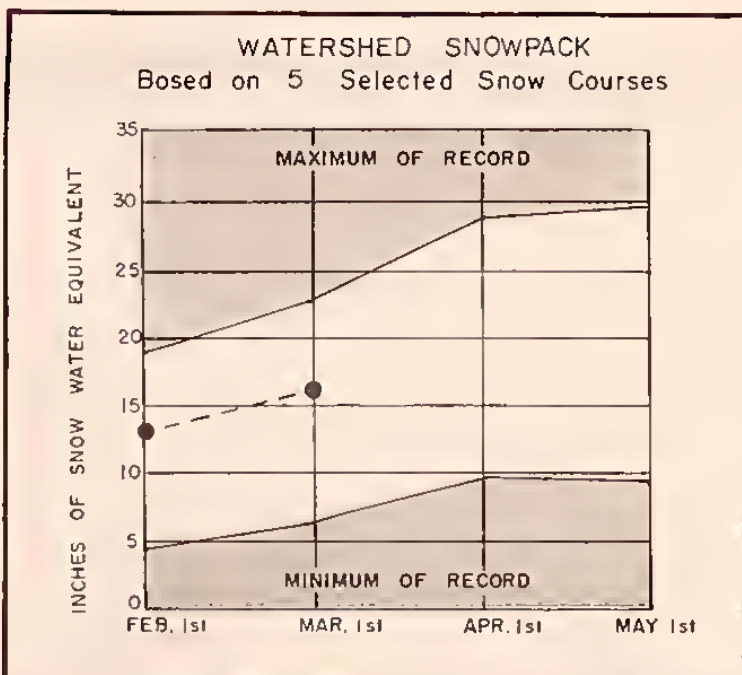
SUMMARY of SNOW MEASUREMENTS

RIVER BASIN and SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Gunnison	12	118	155
Surface Creek	2	106	153
Uncompahgre	3	92	132

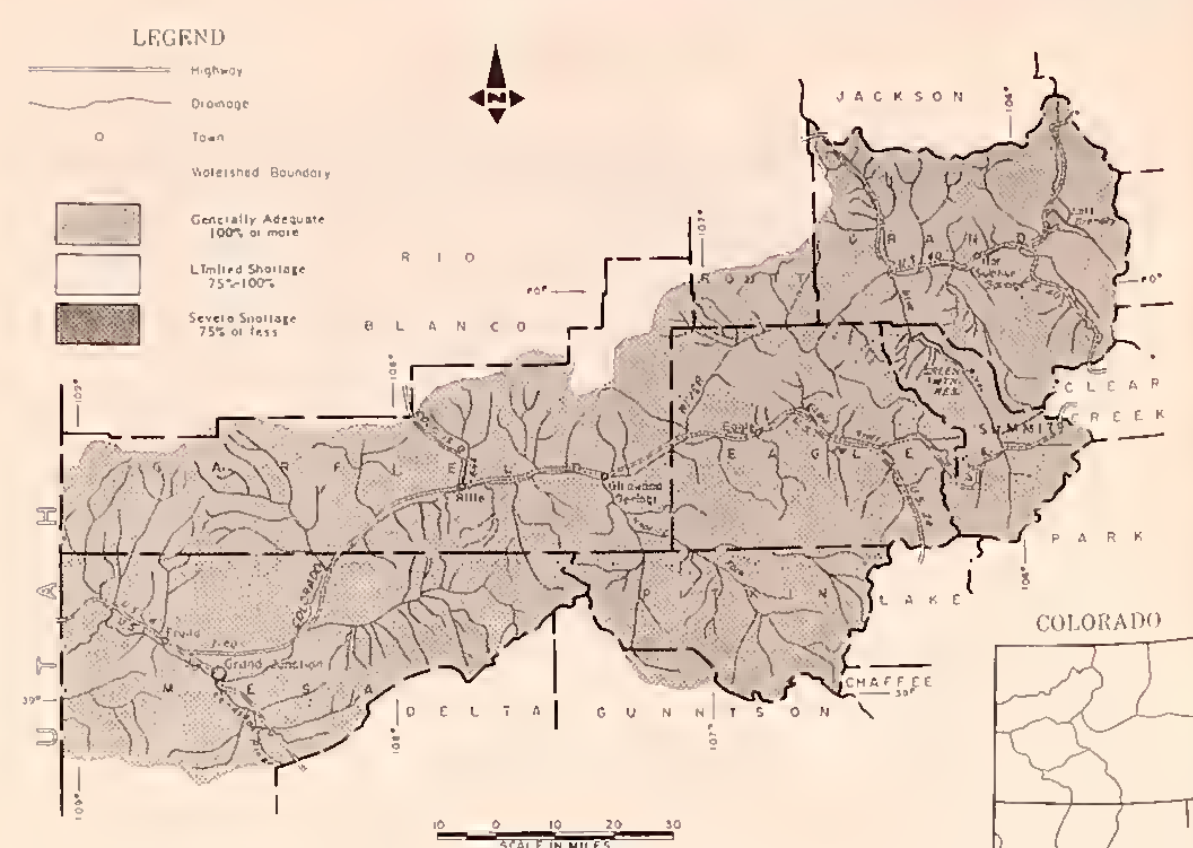
SNOW COURSE MEASUREMENTS

SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	CURRENT INFORMATION		PAST RECORD	
			WATER CONTENT (INCHES)	LAST YEAR	AVG. 1977-78	
GUNNISON BASIN						
<u>Cunnison River</u>						
Alexander Lake	2/27	85	25.4	24.5	16.9	
Blue Mesa	2/28	39	10.8	10.0	7.1	
Butte	2/26	66	20.3	15.9	12.4	
Cochetopa Pass (B)	2/22	30	7.1	5.0	4.7	
Crested Butte	2/26	66	20.8	15.8	11.1	
Keystone	2/26	87	28.8	23.7	16.3	
Lake City	2/27	39	9.6	7.1	6.1	
Mesa Lakes (B)	3/1	63	18.5	19.2	12.9	
McClure Pass	2/23	62	18.8	13.4	13.9	
Park Cone	2/23	49	13.1	9.2	8.6	
Park Reservoir	2/27	94	28.8	26.5	18.5	
Porphyry Creek	2/28	58	18.5	17.5	13.2	
Tomichi	2/28	46	14.1	13.8	10.6	
<u>Surface Creek</u>						
Alexander Lake	2/27	85	25.4	24.5	16.9	
Mesa Lakes	3/1	63	18.5	19.2	12.9	
Park Reservoir	2/27	94	28.8	26.5	18.5	
<u>Uncompahgre River</u>						
Ironton Park	2/27	48	14.6	16.2	12.1	
Red Mountain Pass	2/26	94	32.8	29.6	24.0	
Telluride (B)	2/27	39	10.0	16.6	7.3	

(B)-No survey.
(B)-On adjacent drainage.



COLORADO RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

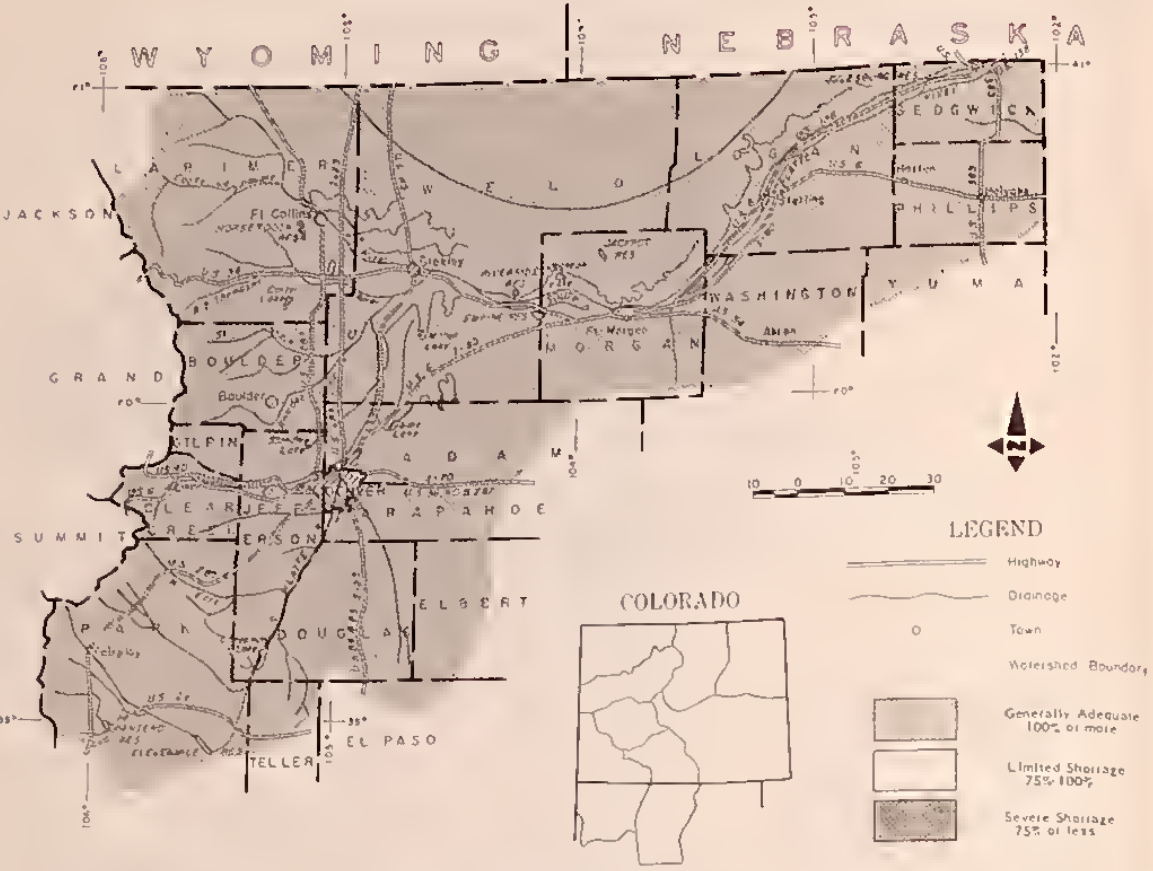
FORECASTS OF STREAMFLOW IN THE UPPER COLORADO RIVER AND ITS TRIBUTARIES HAVE BEEN REVISED DOWNWARD SLIGHTLY FROM LAST MONTH AS A RESULT OF A DECREASE IN BASIN SNOWPACK OF ABOUT 10 PERCENT COMPARED TO FEBRUARY 1 FIGURES. SPRING RUNOFF FORECASTS RANGE FROM NEAR NORMAL ON THE HEADWATERS OF THE BLUE RIVER TO 131 PERCENT OF AVERAGE ON THE COLORADO AT CAMEO. STORED WATER IN RESERVOIRS IS NEAR AVERAGE AND SOIL MOISTURE IS RATED AS GOOD IN MOST AREAS. ALL THESE FACTORS MEAN AN AMPLE SUPPLY OF WATER SHOULD BE AVAILABLE THIS SPRING.

STREAMFLOW FORECASTS (1000 AC. FT.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Blue River inflow to Dillon Reservoir	170	102	167.0
Blue River inflow to Green Mountain Reservoir (1)	310	108	287.0
Colorado River near Cameo (2)	3060	131	2336.0
Colorado River near Dotsero (3)	1680	118	1422.0
Colorado River inflow to Granby Reservoir (4)	255	117	218.0
Roaring Fork at Glenwood Springs (5)	870	125	697.0
Williams Fork near Parshall (6)	65	110	59.0
Willow Creek inflow to Willow Creek Reservoir	60	125	48.0
Eagle River below Cypsum	364	122	298.0

(1) Observed flow plus change in storage in Taylor Reservoir. (2) Observed flow plus change in storage in Blue Mesa, Morrow Point and Taylor Reservoirs. (3) Observed flow plus change in storage in Poudre Reservoir. (4) Observed flow plus change in storage in Dillon Reservoir. (5) Observed flow plus change in storage in Green Mountain Reservoir. (6) Observed flow plus change in storage in Parshall Reservoir. (7) Observed flow plus change in storage in Willow Creek Reservoir. (8) Observed flow plus change in storage in Eagle River Reservoir. (9) Observed flow plus change in storage in Cypsum Reservoir. (10) Observed flow plus change in storage in Granby Reservoir. (11) Observed flow plus change in storage in Roaring Fork Reservoir. (12) Observed flow plus change in storage in Williams Fork Reservoir. (13) Observed flow plus change in storage in Willow Creek Reservoir. (14) Observed flow plus change in storage in Eagle River Reservoir. 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SOUTH PLATTE RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY
FEBRUARY BROUGHT BELOW NORMAL PRECIPITATION OVER THE ENTIRE BASIN AND FORECASTS OF STREAMFLOW GENERALLY REFLECT THIS CHANGE. SOUTH PLATTE HEADWATERS IN SOUTH PARK, CLEAR CREEK AND BOULDER CREEK ARE ALL EXPECTED TO FLOW NEAR NORMAL IF AVERAGE PRECIPITATION IS RECEIVED FOR THE REMAINDER OF THE SEASON. OTHER STREAMS IN THE NORTHERN FRONT RANGE ARE FORECAST TO PRODUCE FLOWS 15 TO 25 PERCENT ABOVE NORMAL. WATER STORED IN SOUTH PLATTE RESERVOIRS IS 96 PERCENT OF NORMAL FOR THIS TIME OF YEAR. WITH GOOD PRECIPITATION IN MARCH AN ADEQUATE WATER SUPPLY IS PROJECTED FOR ALL STREAMS.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Big Thompson River at Drake (1)	120	118	102.0
Boulder Creek at Oradell	47	105	45.1
Cache La Poudre River at Canyon Mouth (2)	280	115	243.0
Clear Creek at Golden (3)	118	98	120.0
St. Vrain Creek at Lyons	89	125	71.6
Bear Creek at Morrison	27	96	28.0
South Platte River at South Platte	72	96	193.0

(1) Observed flow plus by-pass to power plants. (2) Observed flow minus stream-basin diversions plus municipal and irrigation diversions. (3) Observed flow minus diversions through August 31. Goodrich Tunnel.

WATER SUPPLY OUTLOOK

STREAM or AREA	Flow Period	
	Spring Season	Later Season
Coal Creek	Avg	Fair
North Fork of South Platte	Avg	Avg
North Fork of Cache La Poudre	Avg	Fair
Ralston Creek	Fair	Fair
Rock Creek	Fair	Fair
South Platte from Greeley to Fort Morgan	Avg	Avg
South Platte from Fort Morgan to Sterling	Avg	Avg
South Platte below Sterling	Avg	Avg

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and/or Reservoir	Usable Capacity	Usable Storage		
		This Year	Last Year	1963-77 Average
Antero	16	15	15	14
Barr Lake	32	20	16	23
Black Hollow	8	3	3	4
Boyd Lake	44	37	16	37
Cache La Poudre	10	8	6	7
Carter Lake	109	99	72	91
Chambers Lake	9	4	4	3
Cheesman	79	36	27	48
Cobb Lake	34	4	0	14
Eleven Mile	98	91	83	86
Empire	38	11	23	29
Fossil Creek	12	7	7	8
Cross	43	20	23	28
Halligan	6	4	3	42
Horsetooth	144	84	38	95
Jackson	35	23	29	32
Julesburg	28	20	20	20
Lake Loveland	14	77	9	9
Lone Tree	9	1	5	6
Mariano	5	4	5	5
Marshall	10	3	2	4
Marston	17	16	16	15
Milton	24	14	13	13
Point of Rocks	70	63	58	62
Prewitt	33	22	14	20
Riverside	58	29	34	52
Standley	42	29	19	23
Terry	8	5	6	5
Union	13	11	9	10
Windsor	19	11	7	11



SUMMARY of SNOW MEASUREMENTS

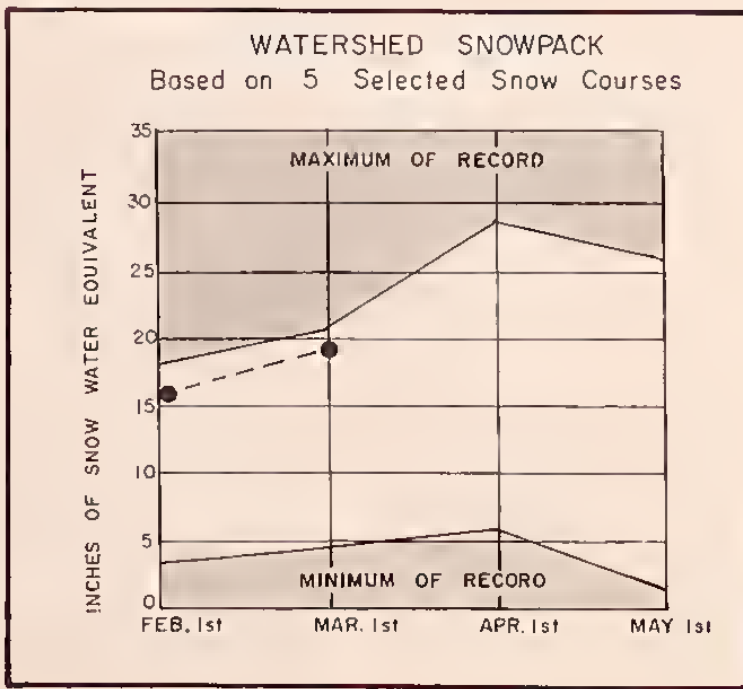
(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Big Thompson	5	81	124
Boulder	3	79	105
Cache La Poudre	9	90	123
Clear Creek	5	72	97
Saint Vrain	3	99	146
South Platte	7	107	118

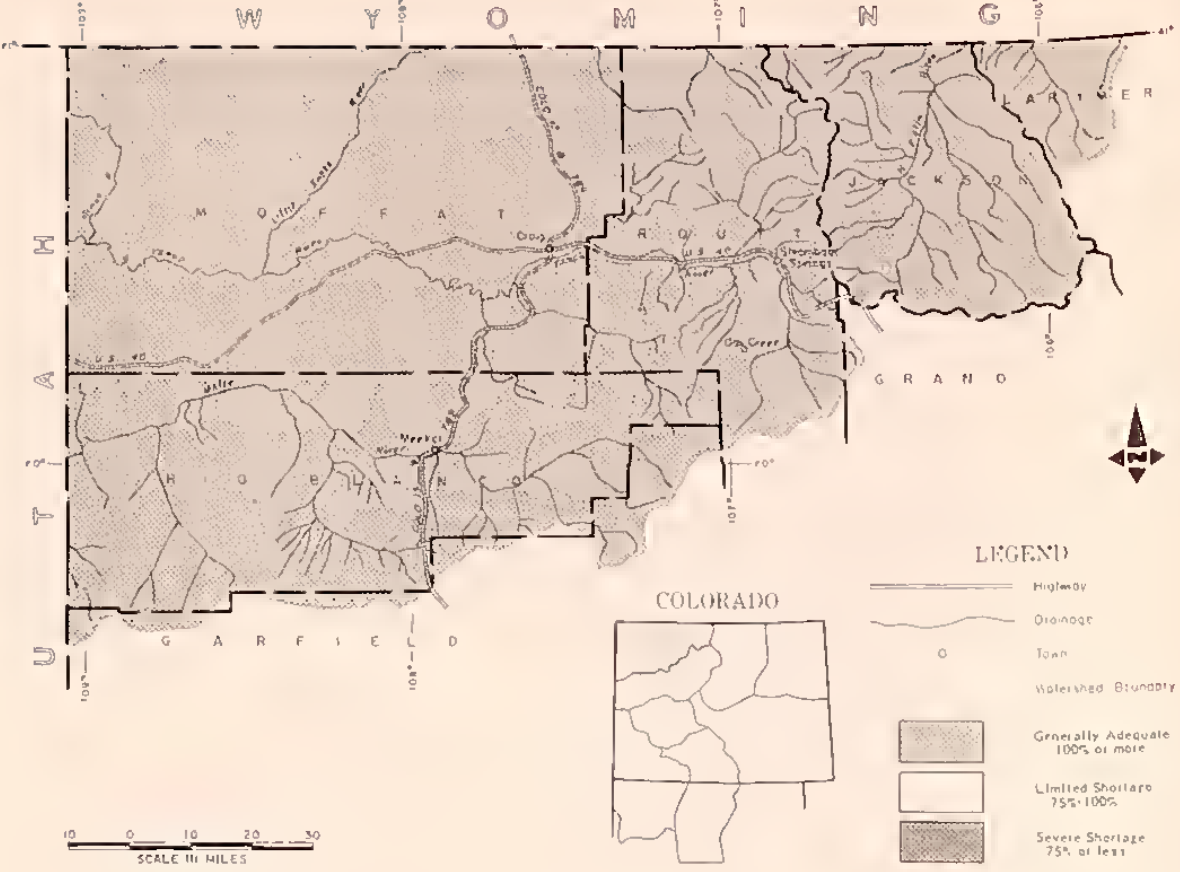
SNOW COURSE MEASUREMENTS

SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	CURRENT INFORMATION		PAST RECORD	
			WATER CONTENT (INCHES)	WATER AS PERCENT OF	LAST YEAR	AVG. 1963-77
SOUTH PLATTE BASIN						
Boulder Creek						
Baltimore	2/26	17	3.8	6.6	5.7	
Boulder Falls	2/26	36	11.3	13.1	10.3	
Lake Eldora	2/27	41	10.4	14.5	--	
University Camp	2/26	46	15.8	19.6	13.5	
Big Thompson River						
Bear Lake	2/27	57	17.1	21.8	--	
Deer Ridge	2/28	22	5.9	7.8	3.9	
Hidden Valley	2/24	37	8.4	12.9	7.9	
Lake Irene (B)	2/26	61	21.5	25.9	17.4	
Long's Peak	2/28	44	11.9	11.6	8.2	
Two Mile	2/27	50	13.6	15.8	11.1	
Willow Park	2/25	57	17.5	21.0	--	
Cache La Poudre						
Bennett Creek	2/27	31	7.8	6.9	6.2	
Big South	2/28	13	3.0	2.9	1.5	
Cameron Pass	2/24	66	24.3	29.1	22.6	
Chambers Lake	2/27	37	10.7	13.5	7.7	
Deadman Hill	2/27	55	15.4	15.4	12.9	
Hourglass Lake	2/27	30	7.0	7.9	5.6	
Joe Wright	2/27	66	20.7	27.1	19.6	
Lost Lake	2/27	40	12.5	14.0	9.5	
Red Feather	2/26	26	7.8	7.1	5.3	
Clear Creek						
Baltimore (B)	2/26	17	3.8	6.6	5.7	
Berthoud Falls	2/26	39	11.1	13.6	11.0	
Empire	2/26	24	5.4	6.1	5.9	
Crizzly Peak (B)	2/26	48	14.5	21.0	14.1	
Loveland Lift	Discontinued					
Loveland Pass	2/26	42	12.7	18.4	12.5	
St. Vrain River						
Copeland Lake	2/25	23	6.2	6.5	3.8	
Ward	2/27	24	5.8	5.2	4.4	
Wild Basin	2/25	42	13.1	13.5	8.9	
South Platte River						
Bison Reservoir	2/28	18	3.6	2.2	--	
Como	3/01	24	6.0	5.0	5.9	
Geneva Park	2/25	18	4.3	2.5	3.3	
Horseshoe Mountain	2/27	39	10.8	9.9	8.3	
Hoosier Pass	2/26	38	10.8	12.7	9.9	
Jefferson Creek	3/01	35	9.1	9.0	7.3	
Mosquito	2/27	35	9.8	11.0	8.3	
Trout Creek Pass	2/28	26	5.0	2.2	4.1	

(B)-No survey.
(B)-On adjacent drainage.



YAMPA, WHITE AND NORTH PLATTE RIVER WATERSHEDS IN COLORADO



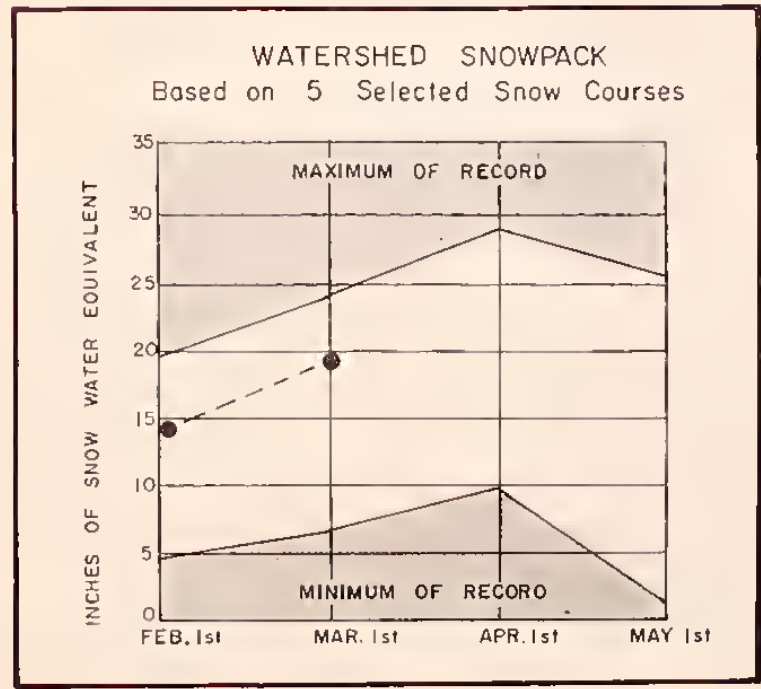
YOUR WATER SUPPLY
SNOWPACK CONDITIONS REMAINED ABOUT THE SAME AS LAST MONTH IN TERMS OF PERCENTAGE OF NORMAL. SOME AREAS IN THE HEADWATERS OF THE ELK RIVER EXPERIENCED FEBRUARY PRECIPITATION WELL ABOVE NORMAL BUT MOST PORTIONS OF THE BASIN RECEIVED NEAR NORMAL AMOUNTS OF SNOW. STREAMFLOW FORECASTS RANGE FROM 114 PERCENT OF AVERAGE ON THE YAMPA AT STEAMBOAT TO 129 PERCENT OF NORMAL ON THE LITTLE SNAKE AT LILY. THE SNOWPACK IS EVENLY DISTRIBUTED WITH THE LOW, MEDIUM AND HIGH ELEVATIONS SHOWING NEARLY THE SAME PERCENTAGE OF NORMAL.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Elk River at Clark	240	121	198.0
Laramie River near Woods	155	124	125.0
Little Snake River at Lily	450	129	349.0
North Platte River at Northgate	310	130	238.0
White River near Meeker	340	118	287.0
Yampa River near Maybell	1050	116	905.0
Yampa River at Steamboat Springs	310	114	273.0

WATER SUPPLY OUTLOOK

STREAM or AREA	Flow Period	
	Spring Season	Later Season
Canadian River	Exc.	Avg.
Hunt Creek	Avg.	Avg.
Illinois River	Avg.	Avg.
Michigan River	Avg.	Avg.
Oak Creek	Exc.	Avg.
Trout Creek	Avg.	Avg.



SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and SUBWATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Elk	2	95	133
Laramie	2	102	123
North Platte	5	92	121
White	2	85	122
Yampa	6	88	133

SNOW COURSE MEASUREMENTS

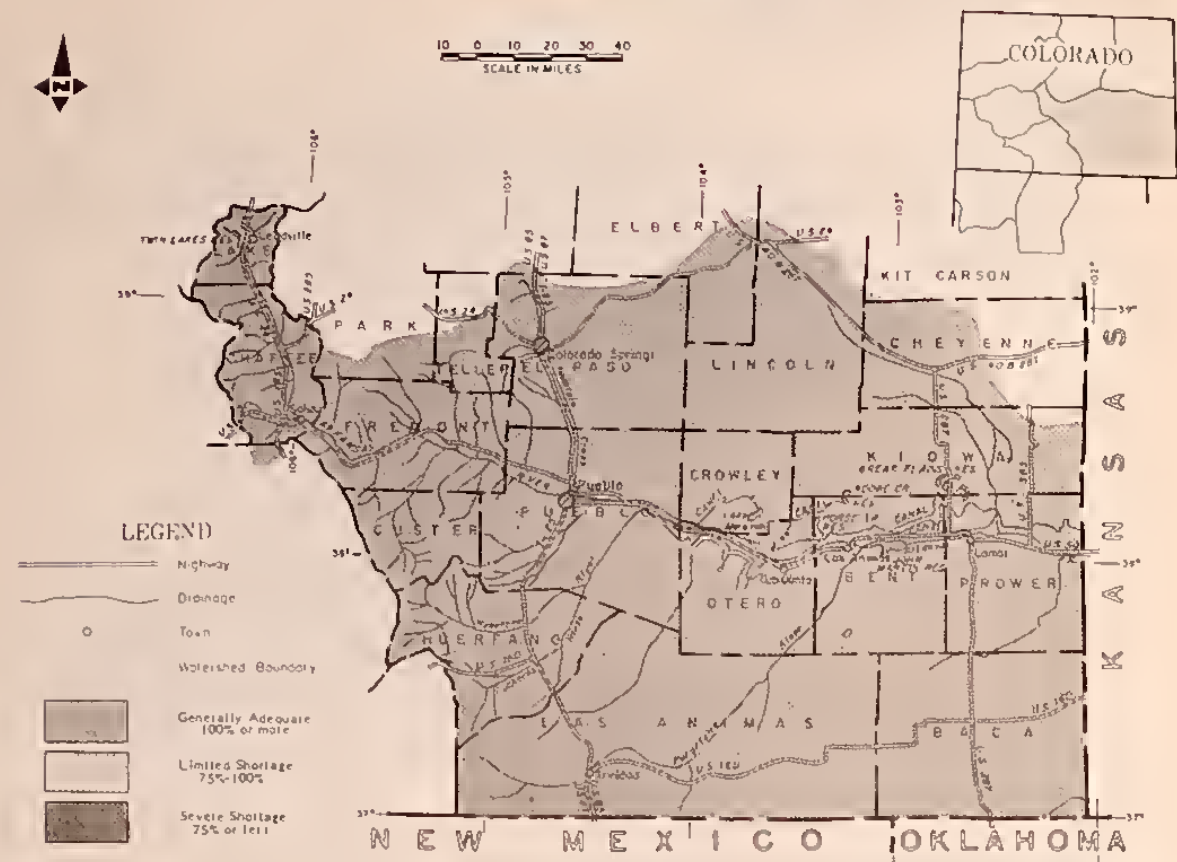
SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	CURRENT INFORMATION		PAST RECORD	
			WATER CONTENT (INCHES)	WATER AS PERCENT OF	LAST YEAR	AVG. 1963-77
NORTH PLATTE BASIN						
Laramie River						
Deadman Hill	2/27	55	15.4	15.4	12.9	
McIntyre	Not Scheduled					
Roach	2/25	61	18.8	18.0	15.0	
North Platte River						
Cameron Pass	2/24	74	26.7	29.1	22.6	
Columbine Lodge	2/26	73	24.7	30.9	19.9	
Northgate	2/23	22	5.0	6.1	5.4	
Park View	2/23	36	9.2	8.0	7.6	
Willow Cr. Pass (B)	2/23	47	13.7	12.0	10.2	
YAMPA BASIN						
Elk River						
Deadman Hill	2/27	64	19.7	21.1	15.4	
Hahn's Peak	2/27	55	17.2	17.7	12.3	
White River						
Burro Mountain	2/27	61	16.8	19.5	13.9	
Rio Blanco	2/26	52	15.5	18.5	12.5	
Yampa River						
Bear River	2/23	48	11.1	12.3	--	
Columbine (B)	2/26	73	24.7	30.9	19.9	
Crosby	Not Scheduled					
Dry Lake	2/28	69	22.5	25.2	16.7	
Lynn Pass (B)	2/26	43	11.2	14.8	10.3	
Rabbit Ears	2/26	78	23.5	30.3	21.0	
Tower	2/28	139	50.0	61.8	39.0	
Yampa View	2/26	51	15.9	16.9	13.0	

(B)-No survey.
(B)-On adjacent drainage.





ARKANSAS RIVER WATERSHED IN COLORADO



YOUR WATER SUPPLY

A COMPARISON OF BASIN SNOWPACK FIGURES FROM FEBRUARY 1 TO MARCH 1 SHOWS A DROP OF 22 PERCENT IN THE HEADWATERS OF THE ARKANSAS RIVER ABOVE SALIDA. STREAMFLOW ON THE ARKANSAS RIVER AND ALL MAJOR TRIBUTARIES IS STILL EXPECTED TO FLOW BETWEEN 30 TO 40 PERCENT MORE THAN USUAL IF THE REMAINDER OF THE SEASON BRINGS NORMAL PRECIPITATION. ABOVE NORMAL RUNOFF IS SORELY NEEDED TO REPLENISH DEPLETED RESERVOIR STORAGE WHICH CURRENTLY IS ONLY 27 PERCENT OF AVERAGE IN THE BASIN. SOIL MOISTURE IN MOST AREAS IS RATED AS ONLY FAIR TO POOR. ABOUT A MONTH REMAINS IN THE PRIME WINTER SNOW ACCUMULATION SEASON.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Arkansas River near Pueblo (1)	364	140	260.0
Arkansas River at Salida (2)	370	128	288.0
Cucharas River near La Veta	11	121	9.1
Huerfano River near Redwing	19	142	13.4
Purgatoire River at Trinidad (3)	45	137	32.8

(1) Flow change in storage in Pueblo Reservoir. (2) Observed flow plus change in Clear Creek, Twin Lakes and Turquoise Reservoirs above Alamosa. (3) Observed flow plus change in Conejos, Pecos, Rio Grande and San Luis Reservoirs. (4) Observed flow plus change in storage in Taos, Rio Grande and Continental Reservoirs. (5) Observed flow plus change in storage in Pecos, Rio Grande and Continental Reservoirs. (6) Observed flow plus change in storage in Pecos, Rio Grande and Continental Reservoirs. (7) Change in storage in Trinidad Reservoir.

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and Reservoir	Usable Capacity	This Year	Last Year	1963-77 Average
Adobe	62	0	0	13
Clear Creek	11	1	4	7
Cucharas	40	0	0	1
Great Plains	150	0	0	39
Horse Creek	27	11	0	6
John Martin	621	8	4	56
Meredith	42	0	0	10
Model	15	0	0	1
Pueblo	351	37	2	—
Turquoise	121	57	47	30
Twin Lakes	58	16	23	26

WATER SUPPLY OUTLOOK

Stream or Area	Flow Period	Spring Season	Late Season
Apishapa River	Exc.	Avg.	
Fountain Creek	Avg.	Fair	
Grape Creek	Exc.	Avg.	
Hardscrabble Creek	Exc.	Avg.	
Monument Creek	Avg.	Fair	



SUMMARY of SNOW MEASUREMENTS

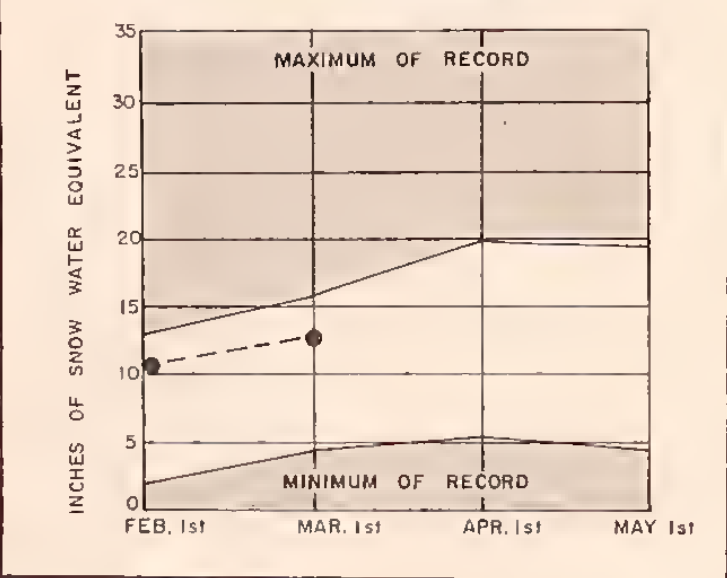
RIVER BASIN and SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	1963-77 Average
Arkansas	11	114	135
Cucharas	2	189	129
Purgatoire	1	172	142

SNOW COURSE MEASUREMENTS

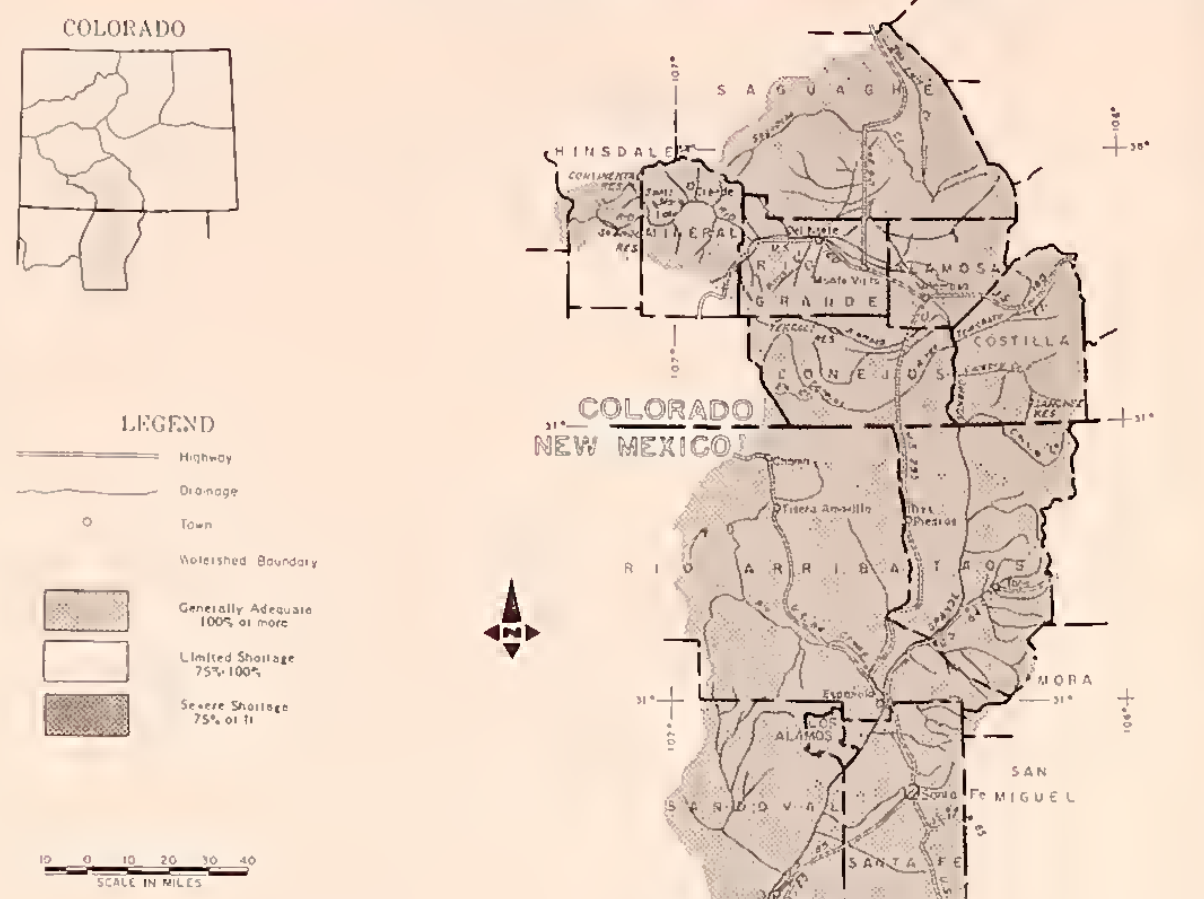
SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	WATER CONTENT (INCHES)	LAST YEAR	1963-77 Average
ARKANSAS BASIN					
Arkansas River					
Bigelow Divide	2/23	23	5.9	3.1	5.6
Brumley	Discontinued				
Cooper Hill (B)	2/27	38	9.7	11.6	8.5
East Fork	2/27	35	8.4	10.8	8.0
Four Mile Park	2/26	30	7.2	5.1	4.9
Framont Pass	2/27	51	13.6	18.8	12.3
Garfield	2/28	47	15.6	11.4	11.0
Hermit Lake	2/26	40	13.2	5.6	7.6
Monarch Pass	2/28	57	19.0	16.6	13.4
South Colony	2/26	79	29.4	—	—
Tennessee Pass	2/26	39	9.9	12.2	8.2
Twin Lakes Tunnel	2/27	44	13.4	12.9	8.0
Westcliffe	2/26	35	11.5	4.0	6.6
Cucharas River					
Apishapa	2/26	21	5.6	4.4	6.4
Cucharas Creek	2/26	28	6.8	5.1	—
La Veta Pass (B)	2/27	44	12.4	5.1	7.6
Purgatoire River					
Bourbon	2/26	29	8.1	4.7	5.7
Whiskey Creek	2/26	34	9.5	—	—

NS-No survey. (B)-On adjacent drainage.

WATERSHED SNOWPACK Based on 5 Selected Snow Courses



RIO GRANDE WATERSHED IN COLORADO AND NEW MEXICO



YOUR WATER SUPPLY

STREAMFLOW IN THE HEADWATERS OF THE RIO GRANDE IN COLORADO ARE EXPECTED TO BE 75 TO 100 PERCENT GREATER THAN AVERAGE AS A RESULT OF AN ABNORMALLY HEAVY SNOWPACK. THE LOW ELEVATION SNOWPACK REMAINS EITHER MAXIMUM OF RECORD OR NEAR MAXIMUM EXCEEDED ONLY BY SNOWPACK RECORDED IN 1952. HIGHER ELEVATIONS ALSO HAVE EXTREMELY HEAVY SNOWPACKS AND WILL PRODUCE A GOOD LATE SEASON WATER SUPPLY. DEPENDING UPON WEATHER CONDITIONS WHICH PREVAIL DURING THE ONSET OF MELT LOCAL FLOODING MAY BE EXPERIENCED IN LOW LYING AREAS NEAR STREAM COURSES. STREAMS IN NORTHERN NEW MEXICO CAN EXPECT TO RECEIVE RUNOFF IN THE VICINITY OF 200 PERCENT OF NORMAL. MANY SNOW COURSES CONTINUE TO MEASURE MAXIMUM OF RECORD AS A RESULT OF ABOVE NORMAL PRECIPITATION DURING FEBRUARY. RESERVOIR STORAGE IS NEAR NORMAL IN COLORADO BUT IS 30 PERCENT BELOW NORMAL IN NEW MEXICO. SOIL MOISTURE IS RATED AS GOOD IN BOTH STATES.

STREAMFLOW FORECASTS (1000 Ac. Ft.)

FORECAST POINT	Forecast	% of Average	1963-77 Average
COLORADO (April-September)			
Alamosa Creek above Terrace Reservoir	106	167	63.6
Conejos River near Mogote (1)	320	175	183.0
Culebra Creek at San Luis (2)	30	196	15.3
Rio Grande at 30 Mile Bridge (3)	220	185	119.0
Rio Grande near Del Norte (3)	860	186	462.0
South Fork of Rio Grande at South Fork	210	176	119.0
NEW MEXICO (March-July)			
Costilla Creek at Costilla (4)	35	227	15.4
Jemez River near Jemez	60	180	33.3
Pecos River at Pecos	78	205	38.1
Red River at Mouth near Questa	50	184	27.2
Rio Chama at El Vado	345	195	177.0
Rio Grande at Otowi (5)	1025	206	497.0
Rio Grande at San Marcial (5)	750	224	335.0
Rio Hondo near Valdez	25	192	12.8
Santa Cruz River at Cundiyo	23	192	11.6

(1) Observed flow plus change in storage in Pueblo Reservoir. (2) Observed flow plus change in storage in Conejos, Pecos, Rio Grande and San Luis Reservoirs. (3) Observed flow plus change in storage in Taos, Rio Grande and Continental Reservoirs. (4) Observed flow plus change in storage in Pecos, Rio Grande and Continental Reservoirs. (5) Observed flow plus change in storage in Pecos, Rio Grande and Continental Reservoirs. (6) Observed flow plus change in storage in Pecos, Rio Grande and Continental Reservoirs. (7) Change in storage in Trinidad Reservoir.

SUMMARY of SNOW MEASUREMENTS

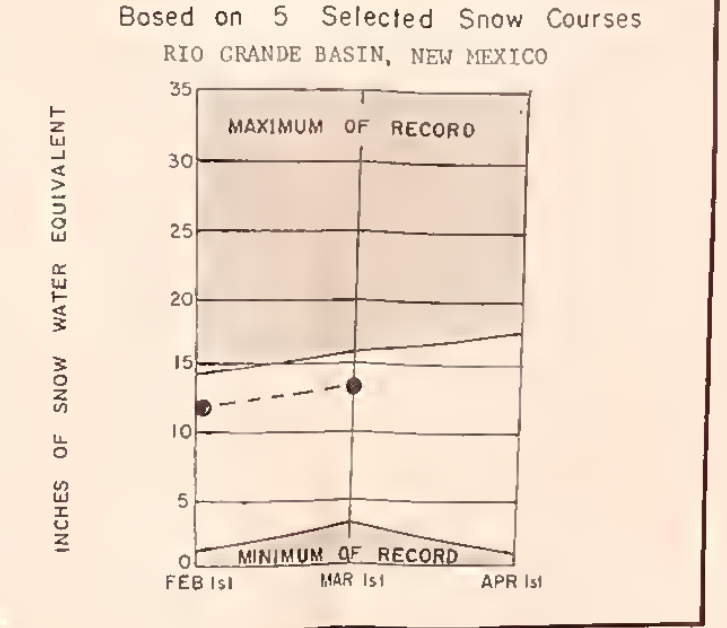
RIVER BASIN and SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	1963-77 Average
COLORADO			
Alamosa	1	241	184
Conejos	5	212	194
Culebra	4	194	193
Rio Grande, CO	12	254	204

SNOW COURSE MEASUREMENTS

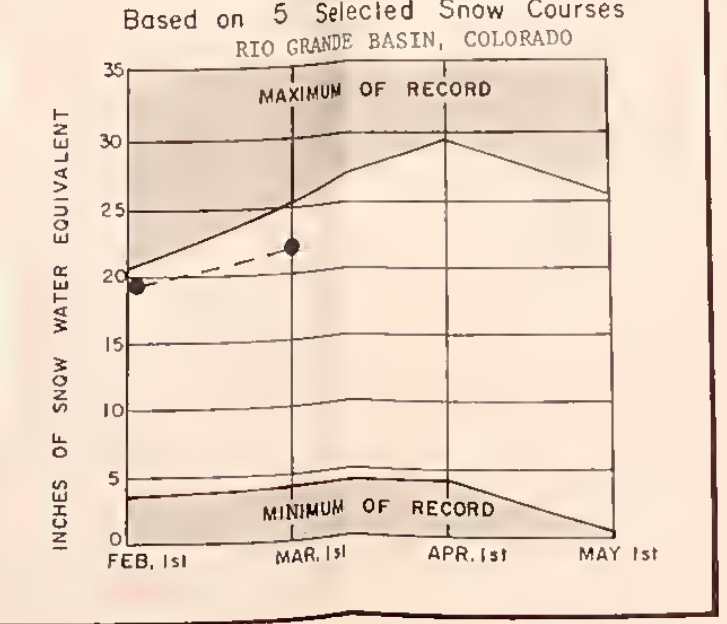
SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	WATER CONTENT (INCHES)	LAST YEAR	1963-77 Average
RIO GRANDE BASIN-COLO.					
Alamosa River					
Silver Lakes	2/28	38	9.4	3.9	5.1
Conejos River					
Cumbres Pass	2/22	95	31.9	17.1	16.0
Cumbres Trestle	2/22	108	37.1	19.6	18.1
La Manga	2/23	98	28.8	12.0	14.2
Platoro	2/22	76	22.8	9.5	13.8
River Springs	2/27	35	10.0	3.5	5.2
Pinos Mill	2/28	102	29.0	—	17.9
Culebra River					
Brown Cabin	2/28	44	13.6	6.0	4.9
Cottonwood (B)	Discontinued				
Culebra	2/26	47	14.3	10.2	7.2
La Veta Pass (B)	2/27	44	12.4	5.1	7.6
Trinchera (B)	2/27	42	10.8	5.0	6.8
Rio Grande					
Big Meadows	2/27	78	26.1	—	7.1
Bristol Head	2/27	61	18.5	—	—
Cochetopa Pass	2/22	30	7.1	5.0	4.1
Grayback	2/27	69	23.2	8.9	12.3
Hway	2/27	108	37.5	15.5	19.3
Lake Humphrey	2/23	55	15.3	3.4	5.2
Love Lake	2/26	59	17.3	6.0	6.2
Middle Creek	2/26	92	33.1	—	—
Pass Creek	2/27	70	22.2	6.5	10.5
Piedra Peak	Discontinued				
Pool Table	2/27	43	10.7	2.8	4.9
Porcupine	2/25	60	16.9	6.9	8.2
Santa Maria	2/25	42	10.9	4.3	4.1
Upper Rio Grande	2/27	54	16.2	6.6	7.2
Wolf Creek Pass	2/27	114	41.0	19.3	21.8
Wolf Cr. Summit (B)	2/27	125	44.2	18.2	22.7

NS-No survey. (B)-On adjacent drainage.

WATERSHED SNOWPACK Based on 5 Selected Snow Courses



WATERSHED SNOWPACK Based on 5 Selected Snow Courses



SUMMARY of SNOW MEASUREMENTS

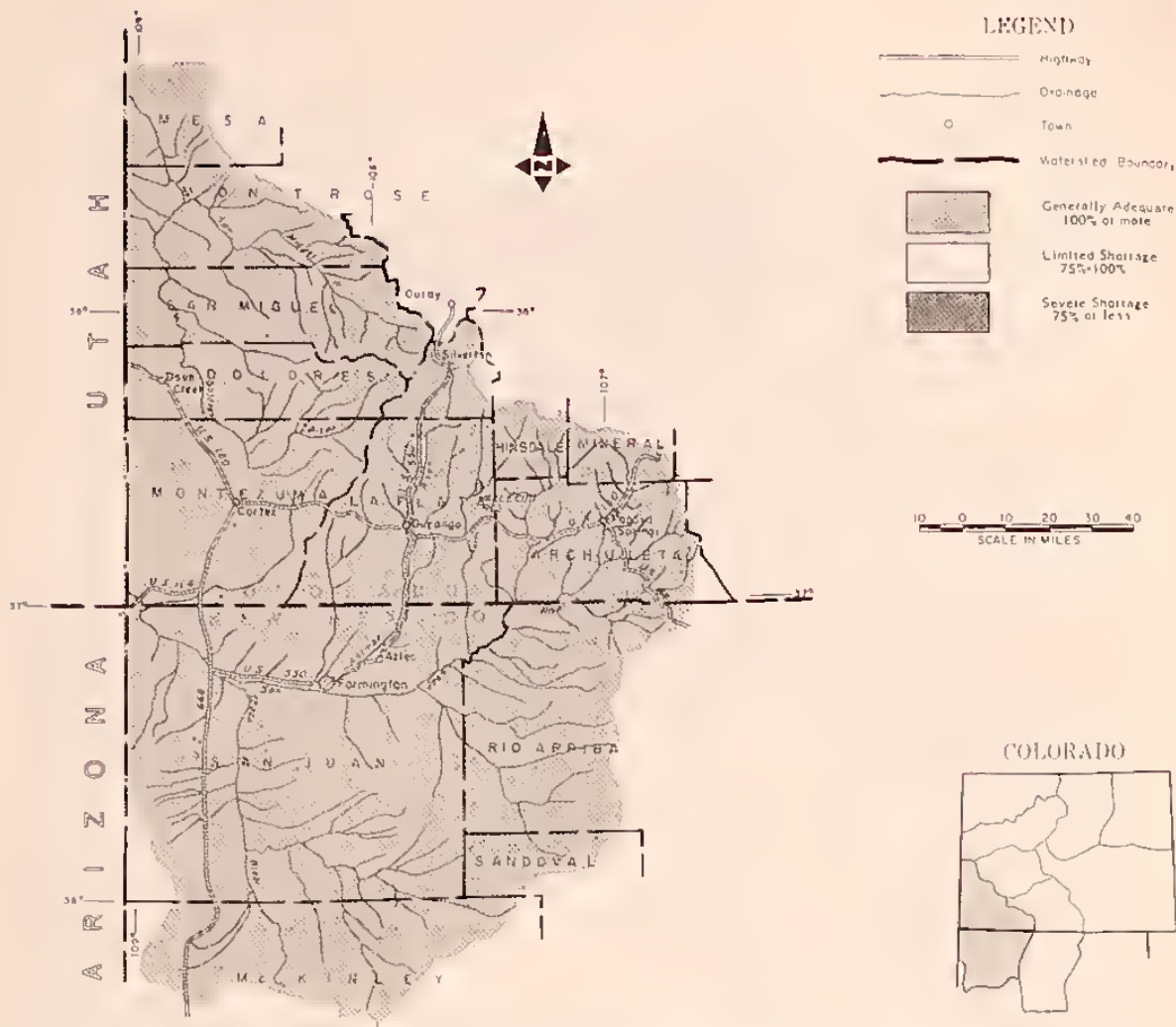
RIVER BASIN and SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	1963-77 Average
NEW MEXICO			
Pecos	1	309	309
Red River	2	265	211
Rio Chama	3	129	180
Rio Grande, NM	13	163	169
Rio Hondo	1	218	—

SNOW COURSE MEASUREMENTS

SNOW COURSE	DATE OF SURVEY	SNOW DEPTH (INCHES)	WATER CONTENT (INCHES)	LAST YEAR	1963-77 Average
RIO GRANDE BASIN - NM					
Pecos River					
Panchuela	2/28	34	10.5	3.4	3.4
Red River					
Homatite Park (B)	2/28	33	8.9	3.0	3.7
Red River	2/22	42	10.7	5.4	5.6
Rio Chama					
Bateman	2/28	51	15.7	11.7	9.2
Chama Divide	2/23	32	7.1	6.9	3.2
Chamita	3/1	50	14.4	9.3	7.6
Rio Grande					
Alamitos	2/28	32	6.9	4.2	5.3
Bernal Trail (B)	2/23	35	8.3	—	—
Big Tesuque	2/23	36	10.6	5.3	5.5
Cordova	2/23	54	13.4	7.1	8.8
Elk Cabin	2/26	23	6.0	2.9	3.2
Gallegos Peak	2/23	52	14.6	7.5	—
Hopewell	2/26	55	17.2	13.2	13.0
La Cueva	2/23	41	12.2	4.5	5.5
North Costilla	2/23	29	5.8	4.6	—
Palo	2/22	41	9.6	6.0	6.7
Payrole	2/26	46	13.8	10.6	7.2
Quemazon	3/1	48	15.2	6.4	7.0
Rio En Medio	2/23	53	15.4	8.4	8.4
Sandoval	2/23	35	9.7	3.9	4.5
Senorita Divide	2/27	42	11.8	8.9	6.7
Taos Canyon	2/22	29	8.8	8.8	4.3
Tres Ritos	2/28	32	6.5	3.5	5.0
Rio Hondo					
Taos Powderhorn	2/26	107	37.9	17.4	—

NS-No survey. (B)-On adjacent drainage.

SAN MIGUEL, DOLORES, ANIMAS AND SAN JUAN WATERSHEDS IN COLORADO AND NEW MEXICO



SUMMARY of SNOW MEASUREMENTS (COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and/or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Animas	8	164	191
Dolores	5	125	158
San Juan	5	198	194

SNOW COURSE MEASUREMENTS

SNOW COURSE	CURRENT INFORMATION			PAST RECORD	
	DATE OF SURVEY	SNOW DEPTH (INCHES)	WATER CONTENT (INCHES)	WATER CONTENT (INCHES)	
				LAST YEAR	AVG. 1977
SAN JUAN-DOLORES BASIN					
<u>Animas River</u>					
Cascade	2/27	65	24.2	12.1	10.4
Lemon	2/28	62	21.6	7.7	8.3
Mineral Creek	2/26	64	24.1	15.4	12.6
Mojas Lake	2/26	59	20.4	13.4	11.2
Purgatory	2/27	97	34.9	18.4	16.5
Red Mt. Pass (B)	2/26	94	32.8	29.6	24.0
Silverton Sub-Sta.	2/26	46	13.8	8.9	7.4
Spud Mountain	2/27	102	36.9	21.6	19.1
<u>Dolores River</u>					
Lizard Head	2/26	70	21.4	17.4	13.9
Lone Cone	2/26	65	21.2	16.0	13.9
Ophir Loop	2/27	62	17.6	16.0	--
Rico	2/26	52	15.5	8.2	7.2
Snow Spur	2/26	67	20.0	--	--
Telluride	2/27	39	10.0	10.2	7.3
Trout Lake	2/27	57	17.9	16.9	12.0
Groundhog	2/26	51	17.2	--	15.2
<u>San Juan River</u>					
Chama Divide (B)	2/23	32	7.1	6.9	3.2
Chamita (B)	3/1	50	14.4	9.3	7.6
Upper San Juan	2/27	134	48.2	24.4	24.6
Wolf Cr. Pass (B)	2/27	114	41.0	19.3	21.8
Wolf Cr. Summit	2/27	125	44.2	18.2	22.7
La Plata	2/27	81	26.8	--	16.2
Mancos T-Down	2/27	70	27.4	--	16.6

NS-No survey.
(B)-On adjacent drainage.

YOUR WATER SUPPLY

STREAMFLOW WILL BE PLENTIFUL ON ALL STREAMS IN THESE BASINS AS A RESULT OF THE HEAVY SNOWPACK IN THE SAN JUAN AND LA PLATA MOUNTAINS. SEASONAL FLOWS ARE EXPECTED TO RANGE FROM 150 TO 230 PERCENT OF AVERAGE. A RECORD SNOWPACK EXISTS AT LOWER ELEVATIONS RAISING THE PROBABILITY OF LOCAL FLOODING IN LOW LYING AREAS IF PROLONGED WARM TEMPERATURES COMBINED WITH RAIN ARE EXPERIENCED. ALL RESERVOIRS WILL HAVE NO TROUBLE FILLING DURING RUNOFF. SOIL MOISTURE IS RATED AS GOOD.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Animas River at Durango	750	176	425.0
Dolores River at Dolores	420	180	233.0
La Plata River at Hesperus	45	191	23.5
Los Pinos River at Bayfield (1)	350	172	204.0
Mancos River near Towac (2)	50	228	21.9
Inflow to Navajo River (1 & 3) NWS	1250	206	608.0
Piedra Creek at Arboles NWS	390	194	201.0
San Juan River at Carracas	700	189	370.0
San Miguel River at Placerville	190	153	124.0

(1) Observed flow plus change in storage in Vallecito Reservoir. (2) March-July. (3) April-July.

WATER SUPPLY OUTLOOK

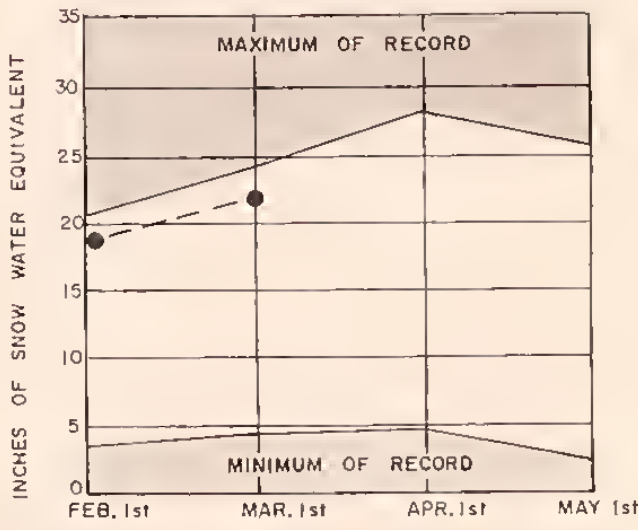
Expressed as "Poor, Fair, Average, Excellent" With Respect to Usual Supply

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Florida River	Exc	Avg
Hermosa Creek	Exc	Avg
West Dolores River	Exc	Avg
Williams Creek	Exc	Avg

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and/or RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	1963-77 Average
Groundhog	22	9	7	10
Jackson Gulch	10	2	4	5
Lemon	40	8	5	18
Navajo	1696	1167	936	689
Vallecito	126	40	22	55

WATERSHED SNOWPACK Based on 5 Selected Snow Courses



WATER SUPPLY OUTLOOK BY MAJOR WATERSHED AREAS

-GUNNISON RIVER WATERSHED

Describes water supply conditions in Delta, Gunnison, Cimarron, Shovana, and Uncampahgre Soil Conservation Districts.

-COLORADO RIVER WATERSHED

Describes water supply conditions in DeBeque, Plateau Valley, Lower Grand Valley, Bookcliff, Eagle County, Middle Park, Glade Park, Upper Grand Valley, South Side, and Mt. Sopris Soil Conservation Districts.

-SOUTH PLATTE RIVER WATERSHED

Describes water supply conditions in Fort Collins, Big Thompson, Langmont, Boulder Valley, Jefferson, Teller-Park, Douglas County, Morgan, Kiowa, West Arapahoe, West Adams, East Adams, Platte Valley, Southeast Weld, and West Greeley Soil Conservation Districts. Also describes water supply conditions in Sedgwick, South Platte, Hoxton, Peetz, Padroni, Morgan, Rock Creek, and Yuma Soil Conservation Districts.

-YAMPA, WHITE AND NORTH PLATTE RIVERS WATERSHED

Describes water supply conditions in Yampa, Maffat, West Routt, East Routt, North Park, White River, and Douglas Creek Soil Conservation Districts.

-ARKANSAS RIVER WATERSHED

Describes water supply conditions in Lake County, Upper Arkansas, Fremont, Custer County Divide, Fountain Valley, Black Squirrel, Central Colorado, Turkey Creek, Pueblo, Bessemer, Olney Boone, Cheyenne, Upper Huerfano, Stanewall, Spanish Peaks, Purgatoire, Branson Trinchera, Western Baca, Southeastern Baca, Two Buttes, Bent, Timpas, Northeast Prowers, Prowers, Kiowa County, West Otero, East Otero, Prairie, Hi Plains, and Double El Soil Conservation Districts.

-RIO GRANDE WATERSHED

Describes water supply conditions in Rio Grande, Center, Conejos, Mosca Hooper, Mt. Blanco, Sanchez, and Culebra Soil Conservation Districts. Also describes water supply conditions in Upper Chama, East Rio Arriba, Taos, Lindrieth, Jemez, Santa Fe - Pojaoque, Sandaval, Tijeras, Cuba, and Edgewood Soil Conservation Districts.

-DOLORES, SAN JUAN, AND ANIMAS RIVERS WATERSHED

Describes water supply conditions in San Miguel Basin, Dove Creek, Dolores, Mancos, LaPlata, Pine River, San Juan, San Miguel Basin, and Glade Park Soil Conservation Districts.